Space Weather Forecast

Issued on Friday, 17 November 2023 at 01:09 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: No significant activity expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has remained Low over the past 24 hours, with only isolated Common class flares, the largest of which from a region which is currently emerging onto the southeast limb. There are two other sunspot regions on the visible disc, one relatively small and magnetically complex, and the other a small and weak region. Both are in the western hemisphere, and have been stable.

There were a number of Coronal Mass Ejections (CMEs) visible on coronagraph imagery during the past 24 hours, and analysing them has been complicated. Of all these events, the one with the greatest Earth directed potential originated from the northwest quadrant around 16/0100 UTC, and has been analysed. This CME has a chance of affecting Earth around the turn of the UTC day Monday 20 into Tuesday 21 November. However, confidence is low regarding this CME arrival, as the CME is weak and slow.

Solar Wind / Geomagnetic Activity: Solar winds have been at predominantly Slightly Elevated levels, peaking at 469 km/s at 16/0540 UTC. It is possible that a very weak connection to a small coronal hole feature has occurred, but if this has happened then the connection has been very weak, The strength of the magnetic field weak throughout, while the important north--south component was often southward directed but also weak. The resulting geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed

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Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain Low, but with a daily Slight Chance of isolated Moderate class flares due to the new region that is currently rotating onto the southeast limb, plus other regions that are expected to rotate onto the visible disc through the forecast period.

Solar Wind / Geomagnetic Activity: The CME associated with the 16/0100UTC filament eruption may reach Earth, but confidence is low regarding this. However, any arrival is unlikely to produce a significant geomagnetic response as the CME is slow and weak.
The solar wind is expected to remain at predominantly background levels today and much of tomorrow, although slightly elevated periods are likely to occasionally occur today due to the possible residual coronal hole influence. Slightly elevated wind speeds may also occur from late tomorrow (18th) due to further coronal hole influence, from a new feature which has developed near centre disc over the past 24 hours. The influence of this thin coronal hole is likely to wane later in the period.

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Met Office Space Weather Forecast

Geomagnetic activity is expected to remain predominantly Quiet, but with isolated Unsettled intervals possible throughout, especially late tomorrow (18th) into day 3 (19th).
Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	15	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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